

PTO 1390 Page 1 of 1

US Dept. of Commerce Pat. & Trademark Office

Attorney's Docket No.

22139

TRANSMITTAL LETTER TO THE UNITED STATES  
DESIGNATED/ELECTED OFFICE (DO/EO/US)  
CONCERNING A FILING UNDER 35 USC 371

US. Application No. (if known)

10/070232

INTERNATIONAL APP. NO.

PCT/EP00/07859

INTERNATIONAL FILING DATE

11 August 2000

PRIORITY DATE CLAIMED

1 September 1999

TITLE OF INVENTION

MACHINE FOR CROSSCUTTING WEBS OF MATERIALS

APPLICANT(S) FOR DO/EO/US

Guido STIX et al

Applicant herewith submits to the United States Designated/Elected Office (DO/EU/US) the following .

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 USC 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 USC 371.
3. ☐ This is an express request to begin national examination procedures (35 USC 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 USC 317(b) and PCT Articles 22 and 39(1).
4. ☒ A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.
5. ☒ A copy of the International Application as filed (35 USC 371(c)(2)).
  - a. ☒ is transmitted herewith (required only if not transmitted by the International Bureau.
  - b. ☐ has been transmitted by the International Bureau.
  - c. ☐ is not required, as the application was filed in the United States Patent Office.
6. ☒ A translation of the International application into English.
7. ☐ Amendments to the claims of the International Application under PCT Article 19 (35 USC 371(c)(3)).
  - a. ☐ are transmitted herewith (required only if not transmitted by the International Bureau.
  - b. ☐ have been transmitted by the International Bureau.
  - c. ☐ have not been made; however the time limit for making such amendments has NOT expired.
  - d. ☐ have not been made and will not be made.
8. ☐ A translation of the amendments to the claims under PCT Article 19 (35 USC 371(c)(3)).
9. ☐ An oath or declaration of the inventor(s) (35 USC 371(c)(4)).
10. ☐ A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 USC 371(c)(5)).

Items 11. to 16. below concern documents or information included:

11. ☐ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
12. ☐ An Assignment for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
13. ☒ A **FIRST** preliminary amendment.
 ☐ A **SECOND** or **SUBSEQUENT** preliminary amendment.
14. ☐ A substitute specification.
15. ☐ A change of power of attorney and/or address letter.
16. ☒ Other items of information.
  - Drawing (2 sheets)
  - References
  - PTO-1449



22139

IN THE U.S. PATENT AND TRADEMARK OFFICE

Inventor                      Guido STIX et al  
Patent App.                  Not known (US Nat'l phase of PCT/EP00/07859)  
Filed                         Concurrently herewith  
For                          MACHINE FOR CROSSCUTTING WEBS OF MATERIALS  
Art Unit                      Not known  
Hon. Commissioner of Patents  
Washington, DC 20231

PRELIMINARY AMENDMENT

Prior to examination of the above-identified application,  
please amend as follows:

In the claims:

Cancel claims 1 through 6 without prejudice.

Add the following new claims:

Atty's 22139

Pat. App. Not known - US phase of PCT/EP00/07859

1       --       7. A machine for crosscutting material webs, in particu-  
2 lar paper or cardboard webs, having a machine frame comprising a  
3 pair of side walls on each side of the machine, crosswise traverses  
4 transversely interconnecting the side walls, and two blade drums  
5 that are journaled at their axial ends in the side walls wherein  
6 the side walls of the machine frame are each formed of side parts,  
7 the side parts each having one longitudinal side formed unitarily  
8 by casting with at least one of the traverses.

1       8. The machine according to claim 7 wherein the machine  
2 frame is formed of two frame parts, each frame part being formed of  
3 two side parts joined by at least one traverse, and a separation  
4 line between two side parts extends on each longitudinal side  
5 through rotation axes of the blade drums.

1       9. The machine according to claim 8 wherein the machine  
2 frame is formed of a main frame part that has a step below a  
3 bearing of the drums and a secondary frame part set on this step.

1       10. The machine according to claim 7 wherein the side  
2 parts have cast bearing races for holding the bearings in which the  
3 blade drums are journaled.

1       11. The machine according claim 7 wherein a web feeder  
2 formed of two pinch rollers is positioned upstream in a web-travel  
3 direction from the blade drums in the machine frame.

Atty's 22139

Pat. App. Not known - US phase of PCT/EP00/07859

12. The machine according to claim 7 wherein all wide additional machine elements, in particular gears of the blade drums and a lifter for one of the feed rollers, are mounted outside the side walls.

Remarks:

This amendment is submitted in an earnest effort to advance this case to issue without delay. The claims have been redone principally to eliminate multiple dependencies. Otherwise new claims 7 through 12 correspond to original claims 1 through 6.

Respectfully submitted,  
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by: Andrew Wilford, 26,597  
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26 February 2002

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**COPY****MACHINE FOR CROSSCUTTING MATERIAL WEBS****FIELD OF THE INVENTION**

The invention relates to a machine for crosscutting material webs, in particular paper or cardboard webs, with a machine frame comprising a pair of side walls on each side of the machine, crosswise traverses transversely interconnecting the side walls, and two blade drums that are journaled at their axial ends in the side walls.

**STATE OF THE ART**

Machines for crosscutting paper or cardboard webs have as is known two rotatably mounted blade drums mounted one above the other in a machine frame and having blades that cut through a material web passing through between them. The machine frame is comprised of side walls that are connected to each other by means of crosswise traversed. In the known crosscutting machines the machine frame is constructed of welded steel. The traverses are welded to the side walls. Normally the side walls are made of several side parts that are screwed or welded together. Such a construction is seen in German 198 03 522.

22139 PCT/EP00/07859



Transl. of WO 01/15875

## OBJECT OF THE INVENTION

It is an object of the invention to so improve on a crosscutting machine of this type that as a result of simple construction it can cut material webs at high speed with a very great production rate.

These objects are achieved according to the invention in that the side walls of the machine frame are each formed of side parts, the side parts each having one longitudinal side formed unitarily by casting with at least one of the traverses.

This construction makes extremely tight manufacturing tolerances possible and ensures that the frame is extremely stiff since no stability-harming bolts are employed. Furthermore the frame is simple to assemble since it is formed of fewer parts.

In a preferred embodiment according to claim 2 the machine frame is formed of two frame parts, each frame part being formed of two side parts joined by at least one traverse. The separation line between two side parts extends on each longitudinal side through rotation axes of the blade drums. This construction has the advantage that the blade drums are very simple to install and remove.

In a particularly advantageous embodiment according to claim 3 the machine frame is formed of a main frame part that has a step below a bearing of the drums and a secondary frame part set on this step.

22139 PCT/EP00/07859

COPY

Transl. of WO 01/15875

According to the preferred embodiment according to claim 4, the side parts have cast bearing races for holding the bearings in which the blade drums are journaled. Since there is no bolted-on bearing flange, the bearing seats can be set closer to each other. This makes it possible to use larger-diameter roller bearings and thus provide the blade drums with thicker shaft pins.

In a preferred embodiment according to claim 5 a web feeder formed of two pinch rollers is positioned upstream in a web-travel direction from the blade drums in the machine frame. The feeder thus does not need its own frame.

According to the embodiment of claim 6 all wide additional machine elements, in particular gears of the blade drums and a lifter for one of the feed rollers are mounted outside of the side walls. This makes it possible to make the machine frame as narrow as possible with a spacing between the side walls that is at most 200 mm wider than the maximum web width of the passing material web. This construction has the further advantage that the additional machine elements are readily accessible for servicing.

#### BRIEF DESCRIPTION OF THE DRAWING

The drawing serves for describing the invention with reference to a simplified embodiment. Therein:

FIG. 1 is a view in the web-travel direction of the crosscutting machine;



22139 PCT/EP00/07859



Transl. of WO 01/15875

FIG. 2 is a side view; and

FIG. 3 is a side view of the machine frame with the main and secondary parts separated.

#### EMBODIMENTS OF THE INVENTION

5           The crosscutting machine shown schematically in section in FIGS. 1 and 2 serves for transversely cutting paper or cardboard webs for the manufacture of paper or cardboard sheets. It works at web-travel speeds of more than 100 m/min, for example 400 m/min, and produces sheets in lengths of about 400 mm to about 200 mm.  
10   Its working width, that is the maximum width of the web being handled, is in the range of one to several meters, here 2200 mm. The desired format widths are set by longitudinally cutting the web by means of an unillustrated longitudinal cutter that separates the web before crosscutting into individual strips of the desired  
15   width.

          The crosscutting machine has two blade drums 1 and 2 that are journaled at their axial ends in side walls 3 and 4 of the machine frame. The two blade drums 1 and 2 are set one above the other with parallel rotation axes. The drums 1 and 2 are provided  
20   on their peripheries with respective blades 7 and 8 that extend as is standard helicoidal axially over the working width. They are set so relative to each other that they cut through the passing web, the helicoidal shape of the blades 6 and 7 ensuring that the passing web is severed perpendicular to the travel direction.

22139 PCT/EP00/07859

COPY

Transl. of WO 01/15875

Each blade drum 1, 2 is formed of a cylindrical base body on whose ends are respective pins 8, 9. The pins 8 and 9 are supported by roller bearings 10 in the side walls 3 and 4. The pins 8 and 9 are provided with respective synchronization gears 11 and 12, the gear 12 being on the upper blade drum 2 and the gear 11 on the lower blade drum 1. The gears 11 and 12 are arranged on the outside of the side walls 3 and 4. At least one pin 8 or 9 is coupled to an electric motor serving as drive for the drums 1 and 2 and flanged to the outside of one of the sidewalls 3 and 4 of the machine frame. In the illustrated embodiment there are two drive motors 13 and 14 set Z-fashion on opposite sides of the machines and connected to the drums 1 and 2.

The machine frame sits on a base 15 and has the two side walls 3 and 4 and traverses 16, 17, 18, and 19 that transversely interconnect the side walls 3 and 4. As shown in FIGS. 2 and 3, each side wall 3 and 4 is formed of two side parts 21 and 22 connected together by screws 23. It is significant to the invention that the side walls 3 and 4 are each made of side parts 21 and 22 and that the side parts 21 and 22 are unitarily cast on both longitudinal sides with at least one, and preferably all, of the connecting traverses 16, 20.

In the embodiment of FIGS. 2 and 3 the frame comprises a main frame part that is comprised of the two side parts 21 and the traverses 16, 17, 18, and 19 cast unitarily with the side parts 21. Each further side part 22 forms with the connecting traverse 20 unitarily cast with the other side part 22 a secondary frame part

22139 PCT/EP00/07859

COPY

Transl. of WO 01/15875

that is solidly screwed to the main frame part. Each side wall 3 and 4 is split such that the separation line runs partially straight between two side parts 21 and 22 through the rotation axes of the two blade drums 1 and 2. Each side part 21 of the main frame part is provided below the bearings for the blade drums 1 and 2 with a horizontal step. This step supports the respective side part 22 of the secondary frame part.

As shown in FIG. 3, each side part 21 and 22 has on an upright face, on which the side parts are screwed together, two spaced and vertically offset semicircular cutouts 24 and 25. When set together the two cutouts 24 and 25 form a circular bearing seat in which the bearing 10 of a blade drum 1 or 2 is set. A bearing race is externally cast around the bearing seat so that no additional bearing flange is needed. Two further semicircular bearing races 28, which are also cast as part of the respective side parts 21 and 22, form a mounting flange for a drive motor 14.

The two-part construction of the machine frame makes it possible to quickly open the bearing of a blade drum and thus quickly remove and replace one of the blade drums 1 and 2.

Immediately upstream of the web-travel direction, from left to right in FIG. 2, is a web feeder that is formed of two pinch rollers 29 and 30. The lower feed roller 29 is driven by a belt from a drive motor 31 that is fixed to the side wall 3. It is journaled at each axial end in a bearing 31 of a side part 21. The upper feed roller 30 is freely rotatable and can be lifted from the lower feed roller 29 so that a web can be fed between the two

22139 PCT/EP00/07859

COPY

Transl. of WO 01/15875

rollers 29 and 30. The ability to lift the upper roller 30 is facilitated in that its ends are carried in annular bearing sleeves that are eccentrically rotatable in the respective side part 21. The eccentrically journaled bearings are connected via levers with a pneumatic piston/cylinder unit that serves as lifter for the upper feed roller 30. The pneumatic piston/cylinder unit and the lever engaging the bearing are mounted on the outside of each side wall 3 and 4. FIG. 3 shows the opening 32 in a side wall 21 through which the respective lever is connected with the internal bearing.

In order to improve the stability of the machine frame, the spacing between the side walls 3 and 4 is maintained as small as possible. In this manner all the machine elements except for the blade drums, which have a width of more than 100 mm, are mounted outside the side walls 3 and 4. Such externally mounted machine elements include the gears 11 and 12, the lifter for the upper feed roller 30, and the drive for a web-clamping device. If the machine elements must for functional reasons be mounted inside within the maximum working width between the side walls 3 and 4, as for example the bearings of the upper feed roller 30, these are so constructed that their width is smaller than 100 mm. The clear distance between the side walls 3 and 4 is thus at most 200 mm wider than the maximum web width of the passing material web.

22139 PCT/EP00/07859

COPY

Transl. of WO 01/15875

## PATENT CLAIMS

1. A machine for crosscutting material webs, in particular paper or cardboard webs, having a machine frame comprising a pair of side walls (3 and 4) on each side of the machine, crosswise traverses (15 to 20) transversely interconnecting the side walls (3 and 4), and two blade drums (1 and 2) that are journaled at their axial ends in the side walls (3 and 4), characterized in that the side walls (3 and 4) of the machine frame are each formed of side parts (21 and 22), the side parts (21 and 22) each having one longitudinal side formed unitarily by casting with at least one of the traverses (16 to 20).

2. The machine according to claim 1, characterized in that the machine frame is formed of two frame parts, each frame part being formed of two side parts (21 and 22) joined by at least one traverse (16 to 20), and a separation line between two side parts (21 and 22) extends on each longitudinal side through rotation axes of the blade drums (1 and 2).

3. The machine according to claim 2, characterized in that the machine frame is formed of a main frame part that has a step below a bearing of the drums (1 and 2) and a secondary frame part set on this step.

22139 PCT/EP00/07859

COPY

Transl. of WO 01/15875

4. The machine according to one of claims 1 to 3, characterized in that the side parts (21 and 22) have cast bearing races (26 and 27) for holding the bearings (10) in which the blade drums (1 and 2) are journaled.

5 5. The machine according to one of claims 1 to 6, characterized in that a web feeder formed of two pinch rollers (29 and 30) is positioned upstream in a web-travel direction from the blade drums (1 and 2) in the machine frame.

10 6. The machine according to one of claims 1 to 5, characterized in that all wide additional machine elements, in particular gears (11 and 12) of the blade drums (1 and 2) and a lifter for one of the feed rollers (30) are mounted outside of the side walls (3 and 4).

(12) NACH DEM VERTRAG ÜBER DIE INTERNATIONALE ZUSAMMENARBEIT AUF DEM GEBIET DES  
PATENTWESENS (PCT) VERÖFFENTLICHTE INTERNATIONALE ANMELDUNG

(19) Weltorganisation für geistiges Eigentum  
Internationales Büro



(43) Internationales Veröffentlichungsdatum  
8. März 2001 (08.03.2001)

PCT

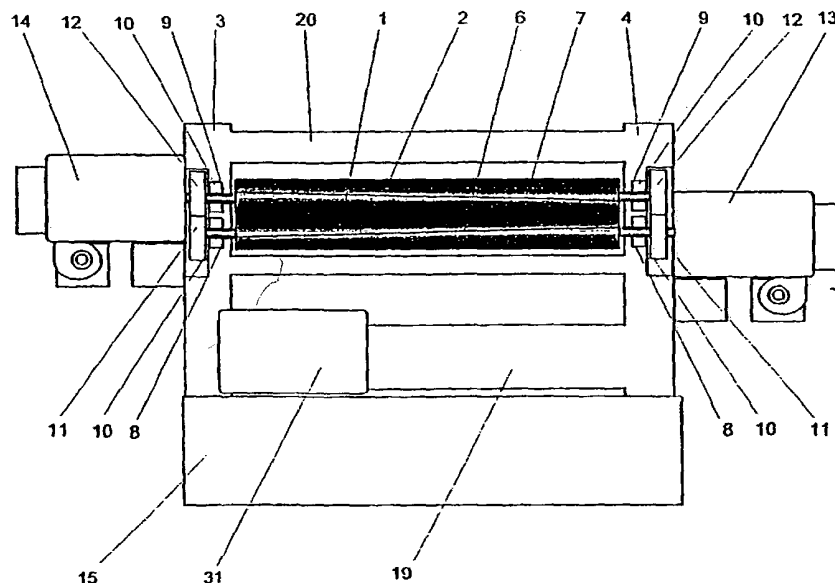
(10) Internationale Veröffentlichungsnummer  
**WO 01/15875 A1**

- (51) Internationale Patentklassifikation<sup>7</sup>: B26D 7/00, (72) Erfinder; und  
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(25) Einreichungssprache: Deutsch  
(81) Bestimmungsstaaten (national): JP, US.  
(26) Veröffentlichungssprache: Deutsch  
(84) Bestimmungsstaaten (regional): europäisches Patent (AT,  
199 41 581.1 1. September 1999 (01.09.1999) DE BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC,  
NL, PT, SE).  
(71) Anmelder (für alle Bestimmungsstaaten mit Ausnahme  
von US): JAGENBERG PAPIERTECHNIK GMBH  
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Veröffentlicht:  
— Mit internationalem Recherchenbericht.

[Fortsetzung auf der nächsten Seite]

(54) Title: MACHINE FOR CROSSCUTTING WEBS OF MATERIAL

(54) Bezeichnung: MASCHINE ZUM QUERSCHNEIDEN VON MATERIALBAHNEN



(57) Abstract: Known machines for crosscutting paper or paperboard webs have a machine frame that consists of respective side walls (3, 4) at every longitudinal side of the machine, said side walls (3, 4) being interlinked via tie-bars (16, 20). The side walls (3, 4) receive the respective axial ends of two knife drums (1, 2). According to the invention, the side walls (3, 4) of the machine frame are constituted by side walls (21, 22), said respective side walls (21, 22) being cast in one piece with at least one connecting tie-bar (16, 20) at both longitudinal sides.

[Fortsetzung auf der nächsten Seite]

WO 01/15875 A1

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2139

**DECLARATION AND POWER OF ATTORNEY**

As a below named Inventor, I hereby declare that: My residence, post-office address, and citizenship are as stated below next to my name.

I believe that I am an original joint inventor of the subject matter which is claimed and for which a patent is sought on the invention entitled

**MACHINE FOR CROSSCUTTING WEBS OF MATERIALS**

the specification of which was filed on 11 August 2000 as PCT application PCT/EP00/07859.

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims.

I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56.

I hereby claim foreign priority benefits under 35 USC 119 of any foreign applications for patent or inventor's certificate listed below and have also identified below any foreign applications for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

**Prior Foreign Applications**

Country	Number	Filing Date	Priority claimed
DE	19941581.1	1 September 1999	Yes

I hereby claim the benefit under 35 USC 120 of the United States Application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States Application(s) in the manner provided by the first paragraph of 35 USC 112, I acknowledge the duty to disclose material information as defined in 37 CFR 1.56 which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

Serial Number	Filing Date	Status
PCT/EP00/07859	11 August 2000	Pending

I hereby appoint as attorneys to prosecute this application and to transact all business connected therewith: Herbert Dubno, Reg. 19,752; Jonathan Myers, Reg. 26,963; Andrew Wilford, Reg. 26,597 and each of them individually.

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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or



22139

Ser. No. Not known - US phase of PCT/EP00/07859

both, under 18 USC 1001 and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

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